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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,387	12/04/2003	Kevin L. Robinson	LMC-34	7745
7590 11/09/2005			EXAMINER	
PLEVY & HOWARD 600 NORTH EASTON ROAD WILLOW GROVE, PA 19090			LUU, CHUONG A	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/727,387	Applicant(s) ROBINSON, KEVIN L.	
	Examiner Chuong A. Luu	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/19/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 3-19 have been considered but are moot in view of the new ground(s) of rejection.

## **PRIOR ART REJECTIONS**

### **Statutory Basis**

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

### **The Rejections**

Claims 3-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (U.S. 20020177261 A1) in view of Kim et al. (U.S. 6,593,603 B1).

Song discloses an integrated circuit device with

(3); (10) a first block comprising an enhancement mode PHEMT transistor on a substrate;

a second block comprising a depletion mode PHEMT transistor on the substrate, the second block operatively connected to the first block (see paragraphs [0024]-[0031]. Figure 4);

(4) further comprising: b: a clock input in communication with at least one of the first block, the second block;

c: a digital output in communication with at least one of the first block, the second block;

d: wherein the first block, the second block connect to form an analog to digital converter (see paragraphs [0024]-[0031]. Figure 4);

(5) wherein the integrated circuit is a microwave and millimeter wave integrated circuit (MMIC) (see paragraph [0003]);

(6) wherein the circuit is a circuit capable of operating at a frequency within the range of from very low frequency up to and including X-band frequencies (see paragraph [0002]);

(8) wherein the substrate comprises a group III-V element (see paragraph [0013]);

(9) wherein the substrate comprises gallium arsenide (see paragraph [0013]);

(11) wherein the plurality of integrated circuits can be interconnected to form a plurality of functional blocks which can be interconnected to create an operational electronic device (see Figure 4);

(12) wherein each of said PHEMT transistors comprises a recess defined in said substrate and a gate formed in said recess (see Figure 4);

(13) wherein the recess of the depletion mode PHEMT transistor is a single recess (see Figure 4);

(15) wherein the recess of the enhancement mode PHEMT transistor is a single recess (see Figure 4);

(16) wherein the recess of the depletion mode PHEMT transistor is a single recess, and each of said recesses is defined through at least one common layer of said substrate (see Figure 4).

Song teaches the above outlined features except for a third block comprising a power PHEMT transistor on the substrate, the third block operatively connected to at least one of the first block and the second block; wherein the recess of the power PHEMT transistor is a double recess; wherein the recess of the power PHEMT transistor is a double recess; wherein at least one of said gates is a T-gate; wherein a pinch off voltage of the depletion-mode PHEMT transistor is about positive 0.1 volts; and wherein a pinch off voltage of the enhancement-mode PHEMT transistor is about negative 1.0 volts. However, Kim discloses a high electron mobility transistor with (3); (4); (7)... a third block comprising a power PHEMT transistor on the substrate, the third block operatively connected to at least one of the first block and the second block; an analog input in communication with at least one of the first block, the second block (see column 2, lines 7-45. Figure 1); (7) an analog to digital converter, comprising an enhancement mode PHEMT device, a depletion mode PHEMT device on a single substrate (see column 1, lines 15-35. Figure 1); (14); (16) wherein the recess of the power PHEMT transistor is a double recess; (17) wherein at least one of said gates is a T-gate (see Figure 1); (18) wherein a pinch off voltage of the depletion-mode PHEMT transistor is about positive 0.1 volts (see column 5, lines 45-61); (19) wherein a pinch

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off voltage of the enhancement-mode PHEMT transistor is about negative 1.0 volts (see column 5, lines 45-61). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Song's device (accordance with the teaching of Kim) to form a transistor since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Doing so would facilitate the manufacture of the semiconductor device and improve the speed of the semiconductor transistor.

### ***Response to Arguments***

Applicant's arguments with respect to claims 3-19 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Taylor fails to teach or suggest all of the limitations of the rejected claims. However, Song discloses an integrated circuit device comprising an enhancement mode PHEMT transistor on a substrate; a second block comprising a depletion mode PHEMT transistor on the substrate, the second block operatively connected to the first block (see paragraphs [0024]-[0031]. Figure 4). In addition, Kim discloses a high electron mobility transistor with (3); (4); (7)... a third block comprising a power PHEMT transistor on the substrate, the third block operatively connected to at least one of the first block and the second block (see column 2, lines 7-45. Figure 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Song's device (accordance with the teaching of

Kim) to form a transistor since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Doing so would facilitate the manufacture of the semiconductor device and improve the speed of the semiconductor transistor.

### ***Conclusion***

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on \*\*\* prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A. Luu whose telephone number is (571) 272-1902. The examiner can normally be reached on M-F (6:15-2:45).



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Chuong Anh Luu', is positioned above the printed name and title.

Chuong Anh Luu  
Patent Examiner  
October 24, 2005



PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

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Substitute for form 1449/PTO		<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use as many sheets as necessary)		Application Number	10/727,387
		Filing Date	12/04/2003
		First Named Inventor	Robinson, Kevin L.
		Art Unit	2825
		Examiner Name	Chuong A. Luu
Attorney Docket Number	LMC-34 (OR-07644)		
Sheet	1	of	1

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
CAL	A	US- 6,797,994-B1	09-28-2004	Hoke et al.	
	B	US- 6,703,638-B2	03-09-2004	Danzilio	
	C	US- 6,620,662-B2	09-16-2003	Hoke et al.	
	D	US- 6,593,603-B1	07-15-2003	Kim et al.	
	E	US- 6,573,129-B2	06-03-2003	Hoke et al.	
	F	US- 6,542,037-B2	04-01-2003	Noll et al.	
	G	US- 2002/0177261-A1	11-28-2002	Song	
	H	US- 6,307,221-B1	10-23-2001	Danzilio	
	I	US- 6,271,547-B1	08-07-2001	Hoke et al.	
	J	US- 6,248,666-B1	06-19-2001	Frijlink et al.	
	K	US- 6,242,293-B1	06-05-2001	Danzilio	
	L	US- 5,364,816-B1	11-15-1994	Boos et al	
	M	US- 5,339,083-B1	08-16-1994	Inami	
	N	US- 5,270,228-B1	12-14-1993	Ishikawa	
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FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>3</sup>
		Country Code <sup>2</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				

Examiner Signature		Date Considered	10/24/05
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

<b>Notice of References Cited</b>	Application/Control No. 10/727,387	Applicant(s)/Patent Under Reexamination ROBINSON, KEVIN L.	
	Examiner Chuong A. Luu	Art Unit 2818	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2002/0177261	11-2002	Song, Jong-In	438/167
	B	US-6,593,603	07-2003	Kim et al.	257/194
	C	US-			
	D	US-			
	E	US-			
	F	US-			
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